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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/630,097

07/29/2003

Jeffrey D. Hooker

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EXAMINER

CHORBAJI, MONZER R

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

08/19/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/630,097	Applicant(s) HOOKER, JEFFREY D.	
	Examiner MONZER R. CHORBAJI	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,8,10-14 and 36-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,8,10-14 and 36-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/29/03&7/26/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This non-final action is in response to the RCE/Amendment received on 8/1/08

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-5 and 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al (U.S.P.N. 5,288,619) in view of Barbee et al (U.S.P.N. 4,070,167).

Regarding claim 1, Brown discloses an apparatus (figure 5:100) that includes the following: a first tank with a first outlet (unlabeled outlet of tank 102 in figure 5), a second tank with a second outlet (unlabeled outlet of tank 104 in figure 5), a third tank with a third outlet (unlabeled outlet of tank 106 in figure 5), one inlet pipe (figure 5:108) coupled to the first, second and third outlets, a reaction chamber (figure 5:110) having an inlet in its bottom (unlabeled end of pipe 108 at the bottom of reaction chamber 110

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in figure 5) that is connected to the inlet pipe, an outlet in the top portion (unlabeled outlet of reaction chamber 110 in figure 5) of the reaction chamber, a natural gravity separatory connected to the outlet of the reaction chamber (figure 5:120) that is capable of receiving transesterified emulsion and a centrifuge connected to the outlet of the natural gravity separator (figure 13:14 and col.66, lines 50-53). Furthermore, Brown uses in-line mixers (figure 13:10 and 22) for mechanically mixing the emulsion to prepare a feed stream to the hydrolysis bioreactor (col.66, lines 20-27). As such, depending on the intensity of the mixing step, one of ordinary skill in the art recognizes that mechanical mixing produces bubbles within the mixed fluid that may possibly have undesirable effect on the subsequent hydrolysis reaction. Brown fails to teach placing an ultrasonic device in the reaction chamber.

Barbee eliminates bubbles from liquids by immersing a vibrating acoustic horn (figure 1:37) in direct contact with the liquid (col.1, lines 40-43) in order to eliminate bubbles within the liquid and to further prevent the subsequent formation of bubbles therein (col.1, lines 13-15). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the apparatus in Brown with the acoustic horn in order to eliminate bubbles within the liquid and to further prevent the subsequent formation of bubbles therein as taught by Barbee (col.1, lines 13-15).

Regarding claims 2-5 and 36-39, the tanks of Brown are capable of holding various types of liquids including fatty acids, or vegetable oils, or concentrated alkaline solutions, or alcohols at various volumes and concentration ranges.

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4. Claims 8, 10-14, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al (U.S.P.N. 5,288,619) in view of Barbee et al (U.S.P.N. 4,070,167) as applied to claims 1, 39 and further in view of Perkins, JR (U.S.P.N. 2,447,529).

Regarding claims 8 and 12, Brown and Barbee fail to teach providing a cooling jacket to their reaction chambers. Perkins places multiple jackets around various reaction chambers (for example, 57 and 58 in figure 1 and col.7, lines 53-70) that are capable of heating or cooling the reaction mixture within the chamber to various temperatures. In addition, Perkins reaction chambers are capable of operating under various pressure values including from 1.0-5.0 atmospheres. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the Brown/Barbee modified reaction chamber by equipping it with a jacket in order to maintain the reaction mixture within a desired temperature range as explained by Perkins (col.7, lines 63-67).

Regarding claims 10-11, Brown fails to teach placing an ultrasonic device in the reaction chamber. Barbee eliminates bubbles from liquids by immersing a vibrating acoustic horn (figure 1:37) in direct contact with the liquid (col.1, lines 40-43) within a container (figure 1:17) in order to eliminate bubbles within the liquid and to further prevent the subsequent formation of bubbles therein (col.1, lines 13-15). In addition, Barbee's ultrasound generator is capable of producing ultrasonic energy at frequencies of between 20-50 KHz and is also capable of providing ultrasonic energy at power densities of between 18-65 Ws/ml. It would have been obvious to one of ordinary skill in

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the art at the time of the invention to provide the apparatus in Brown with the acoustic horn in order to eliminate bubbles within the liquid and to further prevent the subsequent formation of bubbles therein as taught by Barbee (col.1, lines 13-15).

Regarding claims 13-14, Brown's natural gravity separator is capable of separating various transesterified emulsion mixtures and also, Brown's centrifuge is capable of removing traces of catalysts, or residual alcohol or glycerol, or any various residual components by washing and drying.

Regarding claim 40, Brown fails to teach providing a cooling jacket and ultrasound generator to his reaction chamber. Barbee eliminates bubbles from liquids by immersing a vibrating acoustic horn (figure 1:37) in direct contact with the liquid (col.1, lines 40-43) within a container (figure 1:17) in order to eliminate bubbles within the liquid and to further prevent the subsequent formation of bubbles therein (col.1, lines 13-15). Barbee's ultrasound generator is capable of producing ultrasonic energy at frequencies of between 20-50 KHz and is also capable of providing ultrasonic energy at power densities of between 18-65 Ws/ml. Barbee fails to teach equipping the reaction chamber with a cooling jacket. Perkins places multiple jackets around various reaction chambers (for example, 57 and 58 in figure 1 and col.7, lines 53-70) that capable upon intended use of heating or cooling the reaction mixture within the chamber to various temperatures. In addition, Perkins reaction chambers are capable of operating under various pressure values including from 1.0-5.0 atmospheres and also, Perkins jackets are capable of maintaining the reaction chamber temperature between 70-80° C. It would have been obvious to one of ordinary skill in the art at the time of the invention to

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further modify Brown's reaction chamber by placing an ultrasound generator within in it as taught by Barbee in order to eliminate bubbles within the liquid and to further prevent the subsequent formation of bubbles therein (col.1, lines 13-15) to further equip Brown's reaction chamber with a jacket as taught by Perkins in order to maintain the reaction mixture within a desired temperature range (Perkins, col.7, lines 63-67).

5. Claims 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perkins, Jr. (U.S.P.N. 2,447,529) in view of Barbee et al (U.S.P.N. 4,070,167).

Regarding claim 41, Perkins discloses a system that includes the following: supply tanks (figure 1:50-51) that are capable of holding various types of fluids directly supplying to a common conduit (figure 1:142), a reaction chamber (figure 1:123) having an inlet in its bottom (figure 1:123 and 130) coupled to the common conduit, the reaction chamber being encased in a jacket (figure 1:52 and col.7, lines 63-68) that is capable of maintaining the reaction chamber temperature between 70-80° C, an outlet in the top portion of the reaction chamber (figure 1:123 and 122), a separatory coupled to the reaction chamber outlet (figure 1:123, 122, 142, 134 and 71). Furthermore, Perkins reaction chambers are capable of operating under various pressure values including from 1.0-5.0 atmospheres. Furthermore, Perkins uses an agitator (figure 1:14) for mechanically mixing water and the chemical together in order to form the aqueous reagent (col.6, lines 72-75 and col.7, lines 1-4). As such, depending on the intensity of the mixing step, one of ordinary skill in the art recognizes that mechanical mixing produces bubbles within the mixed aqueous solution that may possibly have negative effects on the subsequent type of the produced emulsion that is desired as a

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product. Perkins fails to teach placing an ultrasonic horn extending into the interior of the reaction.

Barbee eliminates bubbles from liquids by immersing a vibrating acoustic horn (figure 1:37) in direct contact with the liquid (col.1, lines 40-43) in order to eliminate bubbles within the liquid and to further prevent the subsequent formation of bubbles therein (col.1, lines 13-15). Barbee's ultrasound generator is capable of radiating ultrasonic energy at frequencies of between 20-50 KHz and is also capable of providing power density values of between 18-65 Ws/ml. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the system in Perkins with the acoustic horn in order to eliminate bubbles within the liquid and to further prevent the subsequent formation of bubbles therein as taught by Barbee (col.1, lines 13-15).

Regarding claims 42-44, the tanks of Perkins are capable of holding various types of liquids including fatty acids, or vegetable oils, or animal oils, or alkaline solutions, or alcohols.

Response to Arguments

6. Applicant's arguments with respect to claims 1-5, 8, 10-14, and 36-44 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONZER R. CHORBAJI whose telephone number is (571)272-1271. The examiner can normally be reached on M-F 9:00-5:30.

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8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. R. C./

/Jill Warden/

Supervisory Patent Examiner, Art Unit 1797